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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,579	09/05/2006	Dean James Patterson	INMT0103PUSA	7341
22045	7590	09/16/2009		
BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075			EXAMINER COLON SANTANA, EDUARDO	
			ART UNIT 2837	PAPER NUMBER
			MAIL DATE 09/16/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/598,579	Applicant(s) PATTERSON ET AL.	
	Examiner Eduardo Colon-Santana	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/12/2007</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> . |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 4/12/2007 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-19 are rejected under 35 U.S.C. 102 (b) as being anticipated by Schmitz et al. U.S. Patent No 6,573,675.

Referring to claim 13, Schmitz et al. discloses a method and apparatus for controlling an electric motor (see figures 1, 3, 4 and respective portions of the specification). Schmitz et al. further depicts from figures 3 and 4, control systems for controlling the output of electric motors (50, 60), including a limiter means (200) that sets a limit value of output power based on (see Col. 7, lines 11-15); means (56, 66) for detecting a speed value of the electric

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motors and means (51, 61) which process the detected value of speed and the limit value of the output power so as to provide a target torque value signal (see T_{ref} , figure 4). Schmitz further depicts from figure 4, a control unit (101) for processing the target torque signal (T_{ref}) so as to provide a control signal for adjusting an electric current (I_f , I_t) supplied to the electric motor to thereby vary the output torque of the electric motor toward the target torque value (see Col. 5, line 51 to Col. 7, line 19).

As to claim 14, Schmitz discloses that the control system and the electric motor form part of an electric drive or traction system.

Referring to claims 15 and 16, Schmitz et al. depicts from figures 3 and 4, power controllers (54, 64) for controlling the current supplied to the motor, wherein the current is supplied by at least one battery (30) (see also Col. 5, lines 57-59).

As to claim 17, Schmitz et al. depicts from figure 4, the control unit (101) including a torque controller (104, 105) and a current controller (103), wherein the torque controller receives the target torque value signal (T_{ref}) and an optional throttle signal (accelerator pedal, see Col. 6, lines 47-49) so as to provide an output current control signal ($I_{f\ ref}$, $I_{t\ ref}$) to the current control (103), wherein the current control (103) receives a phase current feedback signal (102) and outputs a control signal.

Referring to claim 18, Schmitz et al. discloses that an output signal from the battery (30) known as SOC (state of charge) is fed to the limiter means (200) indicative of the power being drawn to supply

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the motors (50, 60) in addition to indicate the power available to be drawn from the battery (see Col 7, lines 6-44 and Col. 7, line 64 to Col. 8, line 13).

As to claim 19, Schmitz et al. addresses all the similar limitations of claim 18 above and in addition discloses that the control mode may be stored as a program in a memory of the limiter means (200) and executed by a PLC (programmable logic controller)(see Col. 10, lines 26-29).

Referring to claims 1-3, the method steps are naturally done in the product structure of claim 13 above.

As to claims 4 and 5, Schmitz et al. clearly describes that the output power is determined by using the detected speed with a predetermined target torque value (see Col. 6, lines 46-67 and figure 5).

Referring to claim 6, the equation presented is a variation of a well-known equation for calculating torque.

Referring to claims 7 and 9, Schmitz et al. clearly specified in figure 5, the relationship between the power generated, the power stored and the power consumed over time, in which the limits set by the limiter means (200) would account for natural losses in the drive system associated with the motors in light of the efficiency of each motor (50, 60).

As to claim 8, Schmitz et al. discloses a battery (30) supplying electric current to the motors (50, 60) and determining by SOC the output power capacity.

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Referring to claims 10 and 11, Schmitz et al. clearly describes in figure 4 and Col. 6, lines 46-57, the steps wherein the output torque is varied to either be identical to the target value T_{ref} or be within a predetermined range that would be acceptable with the target torque value T_{ref} .

As to claim 12, Schmitz et al. clearly depicts from figure 4 using a PWM control unit (109) which outputs a control signal that has a duty cycle adapted to adjust the switching pattern of a power controller (54, 64) that supplies current to the electric motor (50, 60).

Conclusion

4. The prior art made of record in form 892 and not specifically relied upon is considered pertinent to applicant's disclosure to further show the state of the art regarding control means to vary the output torque of an electric motor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Colon-Santana whose telephone number is (571)272-2060. The examiner can normally be reached on Monday thru Friday 7:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Benson can be reached on (571) 272-2800 X.37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E.C.S/
Patent Examiner
Art Unit 2837

/Walter Benson/
Supervisory Patent Examiner, Art Unit 2837

September 10, 2009